

IN THE SPECIFICATION:

[0026] Thus, in order to prevent the crack formation in the film 18, it is essential that the film 18 have a better surface condition or a smaller degree of surface roughness. For example, when the engine valve 10 prior to the oxidation treatment has a surface roughness  $R_z$  of 1.5  $R_z$  micrometer, the oxidation treated engine valve 10 is required to have a surface roughness  $R_z$  of 3.0  $R_z$  micrometers or less after the oxidation treatment in order to effectively prevent the reduction of the fatigue strength MS (i.e., in order to hold the fatigue strength MS within a desired range).

[0034] In view of the results of the tests described above, an appropriate surface treating method of the engine valve 10 (titanium part) comprises the following steps. In a first step, from a correlation of the hardness against the film thickness  $t$  of the hard oxide film 18 formed on a surface of the valve 10, an effective thickness of the hard oxide film 18 corresponding to a required film hardness is determined. The effective roughness  $R_z$  is, for example, 14 micrometer micrometers or less (FIG. 5).